

**EXHIBIT 82**  
**REDACTED**

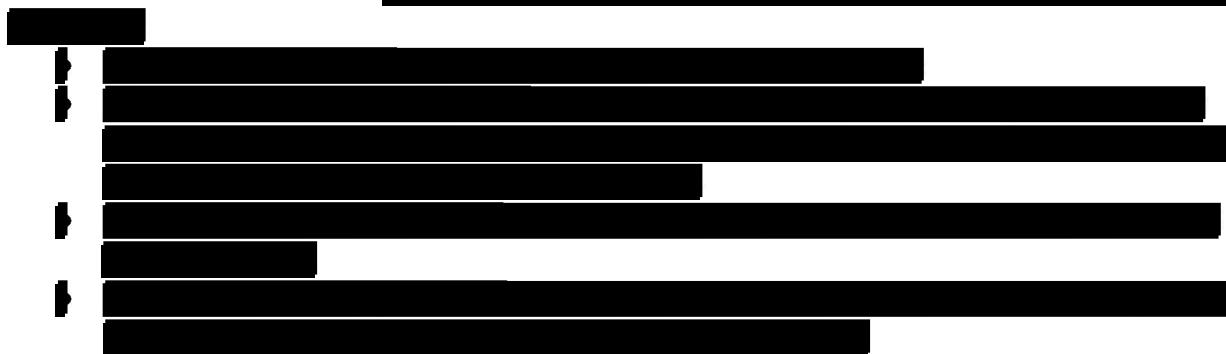
## Reserve Price Optimization (RPO)

**Goal:** set AdX reserve prices to maximize long-term publisher AdX revenue

**Contractual constraint:** can't lower publisher set reserve prices

**Practical constraint:** difficult to measure effect of reserve prices on long-term publisher revenue. Instead, we try to maximize short-term publisher revenue (which can be measured in an A/B experiment) subject to a set of constraints. These constraints are meant to penalize results that we believe could lead to buyers spending less on AdX / shifting spend to other exchanges.

### Current model constraints [REDACTED]



**Problem:** By removing all of the current model constraints, we could achieve a large revenue gain from RPO today. However, we are still concerned about the potential for buyer reaction. This has motivated us to start from first principles to try to figure out what model constraints we impose. We're reaching out to the buyside for domain expertise.

### Questions

- Assuming our only goal is long-term publisher revenue maximization, if we had an oracle that could predict a buyer's bid, should we send out the predicted bid as the reserve price? If not, how come?
- What metrics should we track to measure the potential for adverse buyer reaction?
- What constraints can we impose to try to limit / prevent buyers shifting spend to other exchanges as a result of RPO?
- At what level should these constraints be imposed (buyer, buyer / pub pairs, etc.)?
- What are your thoughts on the current set of constraints? Which would be the best candidates to relax?
- Is there a more principled way for us to choose these constraints?

**DBM Notes - [REDACTED] (1/5)**

- Would like to start from first principles: focus on ecosystem health - trustworthiness of auction itself - if exchange isn't trustworthy buyers aren't incentivized to bid true value
  - VCG auction is gold standard for healthy auction dynamics
    - Sellside
      - Doesn't like Ads Quality features like DRS, RPO where buyer is incentivized to shade bid
      - Floor prices in general violate VCG
    - Buyside
      - Doesn't like notion of DBM bidding as monolithic entity
      - Multiple auctions (DSP → Ad Exchange e.g.) is violation of VCG auction
  - In practice, buyside would need to build out logic to change bid based on auction dynamics in such a way that sellside is incentivized to run pure auction
- [REDACTED] of DBM bidding is fixed price
  - December - [REDACTED]
- Assuming our only goal is long-term publisher revenue maximization, if we had an oracle that could predict a buyer's bid, should we send out the predicted bid as the reserve price? If not, how come?
  - Would want to factor in the performance than an advertiser is looking for (CPC, CPA important for smart bidders)
  - Many advertisers on DBM look at most expensive URLs on CPC basis and blacklist those sites for their campaigns (manual actions, DBM doesn't automate this)
    - When DBM starts making smarter bids, then pubs won't have to blacklist
- What metrics should we track to measure the potential for adverse buyer reaction?
- For performance buyers will buyers be willing to share more clicks / conversions data so that we can take that into account when relaxing constraints?
  - DBM is mostly brand focused (GRP, lift, viewability, unique reach)
  - Performance considerations: CPC, CPM, CPA, cost per unique reach, viewable reach, brand lift
  - DBM is open to sharing info on campaign goals but would have to get explicit advertiser consent
    - Maybe policy change in long run where buyers could share this info by default
- What constraints can we impose to try to limit / prevent buyers shifting spend to other exchanges as a result of RPO?
  - DBM doesn't do [REDACTED]
    - Inventory forecasting is a tough problem
  - As a result, there isn't a notion of DBM shifting spend to other exchanges based on ROI -- maximizing long-term pub revenue now just means charging buyer as much as possible per query

- DBM has started revealing more granular entities in bid responses (e.g. agencies, advertisers, bidders) (individual DBM partner are expressed as canonicalized AdX entities) - assists with deal making -- know that network is actually coca-cola e.g.

**GDN Notes - [REDACTED] (1/9)**

- Gut feeling - can probably do a lot before you see second order effects; many other exchanges are already doing things to inflate prices
- First price auction - there could be effects
- [REDACTED] - good person to sync with
- Assuming our only goal is long-term publisher revenue maximization, if we had an oracle that could predict a buyer's bid, should we send out the predicted bid as the reserve price? If not, how come?
- What metrics should we track to measure the potential for adverse buyer reaction?
- For performance buyers will buyers be willing to share more clicks / conversions data so that we can take that into account when relaxing constraints?
  - Just about getting best value for an advertiser
  - Buyside -- just try to spend budget as quickly as possible
- What constraints can we impose to try to limit / prevent buyers shifting spend to other exchanges as a result of RPO?
- At what level should these constraints be imposed (buyer, buyer / pub pairs, etc.)?
- What are your thoughts on the current set of constraints? Which would be the best candidates to relax?
- Is there a more principled way for us to choose these constraints?
  - Share decks w/ [REDACTED]
- [REDACTED]